

What is claimed is:

1. A method for treating a patient for a nervous system disorder, the method comprising:

(a) receiving a neurological signal through a monitoring element and an amplifier, wherein the neurological signal is a member of a set of neurological signals;

(b) detecting, by a detection algorithm, a first detection cluster based upon the neurological signal;

(c) in response to (b), delivering a treatment therapy through a delivery unit during a first time interval;

(d) in response to (b), blanking the neurological signal during the first time interval of time;

(e) blanking the neurological signal during a second time interval, wherein the neurological signal is adversely affected by a prior treatment therapy;

(f) processing the neurological signal during a third time interval until the detection algorithm meaningfully represents a post-treatment brain state; and

(g) determining whether to redeliver the treatment therapy using an algorithm output that meaningfully represents the post-treatment brain state.

2. The method of claim 1, further comprising:

(h) subsequent to (g), processing the neurological signal during a fourth time interval in order to obtain statistically meaningful data about a subsequent time period.

3. The method of claim 2, further comprising:

(i) determining whether to redeliver the treatment therapy based upon the statistically meaningful data about the neurological signal obtained from processing during the fourth time interval.

4. The method of claim 1, wherein the first time interval is associated with blanking hardware and the second time interval is associated with blanking software.

5. The method of claim 1, wherein the first time interval is associated with blanking software and the second time interval is associated with blanking hardware.

6. The method of claim 1, wherein at least one time interval is predetermined.

7. The method of claim 6, wherein the at least one time interval is determined from an analysis of the neurological signal in relation to at least one factor selected from the group consisting of the treatment therapy, a noise level, and a duration of amplifier saturation.

8. The method of claim 1, wherein the nervous system disorder is selected from the group consisting of a disorder of a central nervous system, a disorder of a peripheral nervous system, a mental health disorder, and a psychiatric disorder.

9. The method of claim 8, wherein the nervous system disorder is selected from the group consisting of epilepsy, Parkinson's disease, essential tremor, dystonia, multiple sclerosis (MS), anxiety, a mood disorder, a sleep disorder, obesity, and anorexia.

10. The method of claim 1, wherein the treatment therapy is selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, and brain temperature control.

11. The method of claim 1, wherein the neurological signal is selected from the group consisting of an electrical signal, a chemical signal, a biological signal, a temperature signal, a pressure signal, a respiration signal, a heart rate signal, a pH-level signal, and a peripheral nerve signal.

12. The method of claim 1, wherein the monitoring element is selected from the group consisting of an electrode and a sensor.

13. The method of claim 1, wherein the treatment therapy is provided to a location of a body selected from the group consisting of a brain, a cranial nerve, a spinal cord, and a peripheral nerve.

14. The method of claim 1, wherein the medical device system is selected from the group consisting of an external system, a hybrid system, and an implanted system.

15. The method of claim 1, further comprising:

(h) detecting a subsequent detection cluster through the amplifier and the monitoring element; and

(i) repeating (b)-(g).

16. The method of claim 1, further comprising:

(h) processing the neurological signal for a fifth time interval, wherein a subsequent detection cluster is not detected;

(i) at a subsequent time after the fifth time interval, detecting the subsequent detection cluster; and

(j) repeating (b)-(g).

17. The method of claim 1, wherein the second time interval is approximately three seconds.

18. The method of claim 1, wherein the third time interval is approximately two seconds.

19. The method of claim 1, wherein the fourth time interval is approximately one half of a second.

20. The method of claim 1, wherein the monitoring element comprises an electrode array, and wherein (b) comprises:

(i) determining a ratio that is associated with each electrode of the electrode array, wherein the ratio approximately equal to a short-term value of an associated neurological signal divided by a long-term value of the associated neurological signal; and

(ii) determining one of the ratios that is larger than the other ratios.

21. The method of claim 20, wherein the short-term value is selected from the group consisting of a short-term average and a short-term median data point.

22. The method of claim 20, wherein the long-term value is selected from the group consisting of a long-term average and a long-term median data point.

23. The method of claim 1, wherein (d) utilizes hardware in order to blank the neurological signal.

24. The method of claim 1, wherein (e) utilizes software in order to blank the neurological signal.

25. The method of claim 1, further comprising:

(h) blanking a second neurological signal during the second time interval, wherein the second neurological signal is affected by the signal artifact.

26. The method of claim 1, further comprising:

(h) if a maximum ratio of the set of neurological signals is always as great as a predetermined threshold during the third interval and the fourth interval, stimulating the patient subsequent to the fourth interval.

27. The method of claim 1, further comprising:

(h) if a maximum ratio of the set of neurological signals is less than a predetermined threshold during the third interval and the fourth interval, preventing a stimulation of the patient until an occurrence of a subsequent seizure detection.

28. The method of claim 27, wherein the subsequent seizure detection occurs when the maximum ratio is always as great as a predetermined threshold during a duration constraint.

29. The method of claim 26, wherein a number of allowable stimulations per detection cluster is limited to a first number.

30. The method of claim 26, wherein a number of allowable stimulations per seizure detection is limited to a second number.

31. The method of claim 26, wherein a number of allowable stimulations per hour is limited to a third number.

32. The method of claim 26, wherein a number of allowable stimulations per day is limited to a fourth number.

33. A computer-readable medium having computer-executable instructions for performing the method recited in claim 1.

34. A computer-readable medium having computer-executable instructions for performing the method recited in claim 2.

35. A computer-readable medium having computer-executable instructions for performing the method recited in claim 15.

36. A computer-readable medium having computer-executable instructions for performing the method recited in claim 16.

37. A computer-readable medium having computer-executable instructions for performing the method recited in claim 25.

38. A computer-readable medium having computer-executable instructions for performing the method recited in claim 26.

39. A computer-readable medium having computer-executable instructions for performing the method recited in claim 27.

40. An apparatus for treating a patient for a nervous system disorder, the apparatus comprising:

a treatment therapy unit that delivers treatment therapy to the patient;  
a set of monitoring elements that obtains a set of neurological signals; and  
a processor that is coupled to the treatment therapy unit and the set of monitoring elements, wherein the processor is configured to perform:

(a) receiving a neurological signal through a monitoring element and an amplifier, wherein the neurological signal is a member of a set of neurological signals;

(b) detecting, by a detection algorithm, a first detection cluster based upon the neurological signal;

(c) delivering a treatment therapy through a treatment therapy unit during a first time interval;

(d) in response to (b), blanking the neurological signal during the first time interval of time;

(e) blanking the neurological signal during a second time interval, wherein the neurological signal is affected by a signal artifact and wherein the amplifier is stabilizing;

(f) processing the neurological signal during a third time interval in order to stabilize the detection algorithm; and

(g) in response to (e), processing the neurological signal for a fourth time interval in order to obtain statistically meaningful data about a subsequent time period.

41. The apparatus of claim 40, wherein the processor is configured to perform:

(h) if a maximum ratio of the set of neurological signals is always as great as a predetermined threshold during the third interval and the fourth interval, stimulating the patient subsequent to the fourth interval.

42. The apparatus of claim 40, wherein the processor is configured to perform:
- (h) if a maximum ratio of the set of neurological signals is less than a predetermined threshold during the third interval and the fourth interval, preventing stimulating the patient until an occurrence of a subsequent seizure detection.
43. A method for treating a nervous system disorder, the method comprising:
- (a) receiving a neurological signal through a recording or sensing element;
  - (b) detecting, changes in the neurological signal through a detection algorithm;
  - (c) in response to (b) delivering a therapy through a delivery unit for a pre-specified duration;
  - (d) in response to (b), blanking the neurological signal during a delivery of therapy;
  - (e) blanking the neurological signal for an additional time interval after a termination of the delivery of therapy, to allow for amplifier recovery; and
  - (f) resume processing of the neurological signal immediately after completion of (d) and (e) for a shortest time interval required to obtain meaningful information about a post-treatment status of the signal.